

**Notice of Allowability**

Application No.

09/918,164

Examiner

Jeffrey A. Smith

Applicant(s)

BOUTILIER ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 7/22/05.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 22 July 2005 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

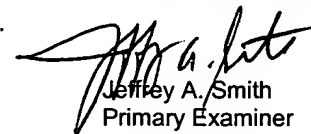
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
Jeffrey A. Smith  
Primary Examiner  
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**EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

***In the Title***

The Title has been amended to read as follows:

--Method of Selecting One or More Bids in a Combinatorial  
Auction--

### REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

#### Regarding claim 1

The prior art of record neither anticipates nor fairly and reasonably teaches a method of selecting one or more winning bids in a combinatorial auction comprising, *inter alia*, the step of replacing the current allocation with one of the neighboring allocations, where the one neighboring allocation is selected from the plurality of neighboring allocations stochastically or based on a heuristic value determined for the one neighboring allocation.

#### Regarding claim 13

The prior art of record neither anticipates nor fairly and reasonably teaches a method of selecting a winning allocation of bids in a combinatorial auction comprising, *inter alia*, the step of selecting one of the neighboring allocations stochastically a part of M times or based on the heuristics determined in step (d) the remainder of M times.

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Regarding claim 18

A method of selecting one or more bids in a combinatorial auction comprising, *inter alia*, the step of selecting one of the neighboring allocations stochastically or based on a heuristic determined for the selected neighboring allocation, said heuristic indicative of a capacity of the selected neighboring allocation to affect a sum of the values of the bids of the current allocation.

The most remarkable prior art of record is to McAfee (U.S. Patent No. 6,718,312) and Sandholm (U.S. Patent No. 6,272,473).

McAfee is directed to a method and system for dynamic combinatorial auctions which produce efficient auctions by way of an optimization subroutine (McAfee: column 11, lines 44-50). Because McAfee utilizes an optimization subroutine to deterministically find optimal solutions, McAfee simply has no need to use stochastic and heuristics to find probabilistic solutions, as is the case in the present invention. In this regard, because the McAfee patent teaches the use of deterministic means (the optimization subroutine) to determine the optimal solution, McAfee teaches away from the present invention which utilizes probabilistic means (stochastics and

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heuristics) to determine high-quality, but not necessarily optimal solutions.

In Sandholm, the foremost objective of the auction is to determine the optimal solution by systematically and exhaustively searching out every candidate allocation. Sandholm is deterministic and does not compromise optimality. The present invention is nondeterministic (i.e., probabilistic), and targets high-quality solutions and uses a random component that is guided through the use of stochastics and heuristics in order to find a solution. The present invention uses stochastic and heuristic search methods to achieve a high-quality solution, but not necessarily optimal solutions.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey A. Smith whose telephone number is (571) 272-6763. The examiner can normally be reached on M-F 6:30am-6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wynn Coggins can be reached on (571) 272-7159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrey A. Smith  
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Art Unit 3625

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